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<b>TRANSMITTAL FORM</b>  (to be used for all correspondence after initial filing)	Application Number	09/753,381	<b>RECEIVED</b>  <b>JUN 29 2005</b>  <b>BOARD OF PATENT APPEALS AND INTERFERENCES</b>
	Filing Date	Jan 2, 2001	
	First Named Inventor	Van Beek	
	Art Unit	1681	
	Examiner Name	Irene Marx	
Total Number of Pages in This Submission	8	Attorney Docket Number	4532670/44892

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

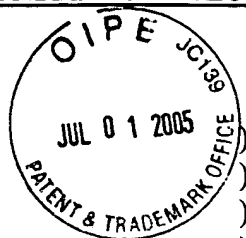
In re Application of

Van Beek

Serial No. 09/753,381

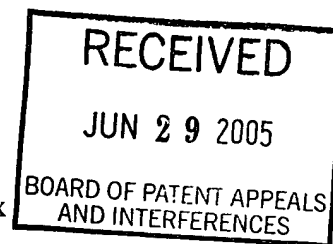
Filed: January 2, 2001

For: Method for Improving the Activity  
Of Enzymes



Group Art Unit 1681

Examiner: Irene Marx  
Appeal No.:



**REPLY BRIEF**

The Examiner has maintained her position that no basis or support is found in the specification for the phrase “lecithins that have been enzymatically enriched in the amounts of lysophospholipids to contain at least 5% by weight of lysophospholipids to the amount of lysophospholipids plus phospholipids” that appears in claims 1-7 and 10-13. This phrase is a simply definition of lysolecithins, and the term lysolecithins appears throughout the specification. One of ordinary skill in the art would realize that this phrase is nothing more than a definition of lysolecithins. The support for “at least 5%” is found in Appellant’s use of the term “lysolecithin” (e.g., pg. 4) in the specification and Appellant’s use of “lysophospholipid/phospholipids-type of surfactants” (e.g., pg. 3).

The examiner has specifically taken issue with the use of “at least” in this claim limitation, and has argued that in order for “at least 5% by weight” to have support in the specification, the specification should have indicated a range of “5-100%.” After Appellant submitted its Appeal Brief, the Examiner contacted Appellant’s attorney and indicated that she would accept the claims if they stated “at least about 5%” instead of “at least 5%,” thus limiting Appellant to the specific lysolecithin used in the experimental examples. If the Examiner’s

position were correct, Appellant would have been required to describe every lysolecithin that comprised a lecithin enzymatically enriched in the amount of lysophospholipids to contain any amount greater than 5% by weight of lysophospholipids to the amount of lysophospholipids plus phospholipids in order to obtain coverage for adding lysolecithins to animal feed in order to degrade the neutral detergent fiber.

The Examiner's position is contrary to case law. In Ralston Purina Company v. Far-Mar-Co, Inc., 772 F.2d 1570 (Fed. Cir. 1985), the Federal Circuit held that a specification describing moisture content limitations was adequate support for the claim limitation of "at least 25% by weight," in part because "the open ended claims. . . would be limited by what a person skilled in the art would understand to be workable." In In re Rasmussen, 650 F.2d 1212, 1215 (CCPA 1981), the court explained "[t]hat a claim may be broader than the specific embodiment disclosed in a specification is in itself of no moment", thus recognizing that disclosure of a single species within a genus may be enough support for a claim directed to the genus. The court in Bilstad v. Wakalopoulos, 386 F.3d 1116 (Fed. Cir. 2004) explained that "this court has continued to apply the rule that disclosure of a species may be sufficient written description support for a later claimed genus including that species." Appellant believes that the case presently in front of the Board is a better case than Ralston, Rasmussen, or Bilstad. Appellant's specification states that "the surfactants used are lecithin and/or lysolecithin." (pg. 4). Appellant has explicitly described the use of the genus lysolecithin as a surfactant in the specification. As Appellant has explained previously, lysolecithin is lecithin enzymatically enriched in lysophospholipids, and one of ordinary skill in the art would recognize these enzymatically enriched lecithins as lysolecithins. As such, Appellant is entitled to broadly claim the genus lysolecithins (or "lecithins that have been enzymatically enriched in the amounts of lysophospholipids to contain

at least 5% by weight of lysophospholipids to the amount of lysophospholipids plus phospholipids”). It would be improper to limit Appellant’s claims to the one species of lysolecithins used in the experimental examples by requiring the “at least about 5%” language suggested by the Examiner.

In the specific examples provided in the specification, the sources of lysolecithin were Bolec MT and Lysoprin. In the case of Lysoprin, it has been determined that Lysoprin contains approximately 33% lysophospholipids. In the case of Bolec MT, it has also been determined to contain approximately 33% lysophospholipids. The experiments used 16% of either Bolec MT or Lysoprin, such that the experiments analyzed the use of a surfactant that was a lecithin enzymatically enriched in the amounts of phospholipids to contain at least 5 % [ $16\% \times 33\% = 5\%$ ] by weight of lysophospholipids to the amount of lysophospholipids plus phospholipids.

After Appellant filed its Appeal Brief, the Examiner contacted Appellant’s attorney and indicated that the claims would be allowable if the claim limitation was “at least about” instead of “at least”. This limitation was not acceptable to Appellant, as the invention is for use of lysolecithins as a surfactant, not a specific lysolecithins . Appellant, however, offered to replace the phrase with “a lecithin composition enzymatically enriched in lysophospholipids to contain an effective amount of lysophospholipids to the amount of lysophospholipids plus phospholipids to degrade the neutral detergent fiber in the animal feed.” Appellant’s Proposed Amendment submitted to the Examiner appears in Exhibit A. The Examiner rejected this amendment without comment and filed a Brief. Appellant believes that support for the claims as they appear in Exhibit A can also be found in the specification, which refers to using lysolecithins as a surfactant. The phrase “effective amount” is a common and generally acceptable term and is not ambiguous or indefinite, provided that a person of ordinary skill in the art could determine

specific amounts without undue experimentation. See Geneva Pharmaceuticals, Inc. v. Glaxosmithkline, 349 F.3d 1373 (Fed. Cir. 2003).

The term “at least” in the claim limitation before the Board, the term “lysolecithin” as originally filed, or the use of “effective amount” as proposed to the Examiner are all supported by the disclosure in the as-filed specification. Appellant would accept “at least 5%”, “lysolecithin,” or “an effective amount” [as seen in the Proposed Amendment in Exhibit A]. The claims should not be limited to only “at least about 5%”, however, for the reasons detailed above.

Claims 10 and 13 have been rejected because the Examiner argues that there is no support for the results claimed in claim 10 in the specification. Claim 10 recites that degradation is increased by at least 50% over degradation by the exogenous enzyme alone. This quantification of the enhanced NDF degradation is supported by the specification. Specifically, in Table 2, the degradation of neutral detergent fiber by the exogenous enzyme ENZ-Xylanase at 250 Kg/T and the surfactant Tween (not a converted lecithin) resulted in an NDF degradation of 2.89%, whereas the ENZ-Xylanase at 250 Kg/T combined with Kg/T of the surfactant S4 (a lysolecithin) resulted in an NDF degradation of 10.72%.

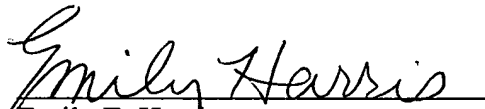
The basis for the limitation of claim 13 regarding the reduction of exogenous enzyme in the range of none to 50% over degradation by exogenous enzyme alone is also supported in the specification. Specifically, in Table 2, the NDF degradation by the use of the exogenous enzyme ENZ-Barley at a level of 500 Kg/T was 5.10% and the NDF degradation by the use of the exogenous enzyme ENZ-Barley at a level of 250 Kg/T with the addition of surfactant S2 (a lysolecithin) resulted in the same 5.10%. The specification also states “[s]urprisingly, when the lysophospholipid/phospholipids-type of surfactants are used, a reduction of up to 50% of the

enzymes used in the feed can be made without a degradation in the desired effect of the enzymes.” (page 2, lines 7-9).

Appellant respectfully requests that the Board grant the claims as provided in the Appendix to Appellant’s Appeal Brief, or, in the alternative, grant the claims with the word “lysolecithin” replacing the recitation “lecithins that have been enzymatically enriched in the amounts of lysophospholipids to contain at least 5% by weight of lysophospholipids to the amount of lysophospholipids plus phospholipids” which is the form of claim 1 prior to the earlier erroneous rejection of claim 1 by the Examiner, or grant the claims as they are presented in Exhibit A.

Respectfully submitted,

Date: 6/27/05

  
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### Proposed Amendment

1. (Amended) A method for improving the degradation of the neutral detergent fiber in an animal feed with a combination of ~~by an exogenous enzymes of the neutral detergent fiber in an animal feed~~, comprising the step of adding an effective amount of a surfactant to an animal feed containing ~~the a combination of~~ exogenous enzymes comprising xylanase,  $\alpha$ -amylase,  $\alpha$ -galactosidase,  $\beta$ -glucanase, cellulase, lipase, and protease, wherein the a-surfactant selected from the group consisting of a lecithins composition that have been enzymatically enriched in the amounts of lysophospholipids to contain at least about 5% by weight an effective amount of lysophospholipids to the amount of lysophospholipids plus phospholipids, to degrade the neutral detergent fiber in the animal feed.

2. Cancelled

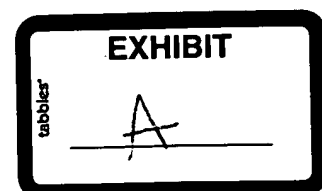
3. (Amended) ~~A~~ The method as defined in claim 1, wherein said animal feed includes from between about 10 weight percent to about 55 weight percent of a small cereal grain.

4. (Amended) ~~A~~ The method as defined in claim 3, wherein said small cereal grain is selected from the group consisting of wheat and barley.

5. (Amended) ~~A~~ The method as defined in claim 4, wherein said enzyme is added to said animal feed in an amount to provide exogenous xylanase activity of between about 100 and about 50,000 units per kilogram of said animal feed.

6. (Amended) ~~A~~ The method as defined in claim 5, wherein said surfactant is included in an amount that is between about 0.025 and about 0.200 grams/kilogram of the animal feed.

7. (Amended) ~~A~~ The method as defined in claim 1, wherein said surfactant is included in an amount that comprises between about 0.025 and about 0.200 grams/kilogram of the animal feed.



8. (Withdrawn)

9. (Withdrawn)

10. (Amended) ~~A~~The method as defined in claim 1, wherein the degradation of neutral detergent fiber is increased by at least at least about 50% over neutral detergent fiber degradation by the combination of exogenous enzyme ~~alone~~without the surfactant.

11. Cancelled

12. (Amended) ~~A~~The method as defined in claim ~~11~~1, wherein the protease is added in an amount between about 0.1% and about 1% by weight of the other exogenous enzymes and surfactant.

13. (Amended) A method of reducing the amount of exogenous enzyme required to achieve a preselected level of degradation of neutral detergent fiber in an animal feed, comprising the step of adding an effective amount of a surfactant to the ~~an~~ animal feed containing a combination of ~~an~~ exogenous enzymes selected from the group consisting of ~~comprising~~  $\alpha$ -amylase,  $\alpha$ -galactosidase,  $\beta$ -glucanase, cellulase, lipase, and xylanase; and protease; and ~~and~~ wherein the surfactant selected from the group consisting of ~~is~~ a lecithins composition that have been enzymatically enriched in the amounts of ~~lysophospholipids to~~ contain at least about 5% by weight of ~~an effective amount of~~ lysophospholipids to the amount of lysophospholipids and ~~plus~~ phospholipids, and wherein the amount of the exogenous enzymes required ~~added~~ is reduced by up to about 50% without a reduction in degradation of neutral detergent fiber.